

*Mr. China*

Cornell University

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A PROGRAM OF  
CHINESE AGRICULTURE

ABSTRACT OF

A THESIS

PRESENTED TO THE FACULTY OF  
THE GRADUATE SCHOOL OF  
CORNELL UNIVERSITY

IN PARTIAL FULFILMENT OF REQUIREMENTS  
FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

BY

RUI FENG, M. S. A.

JUNE, 1924



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## CHAPTER I. INTRODUCTION.

The fundamental solution of the problem of Chinese agriculture is to reduce the number of farmers in the nation and to develop a home market as well as a foreign market through manufacture and commerce. The solution of this problem involves the national development of industries and commerce, an adequate system of transportation, national development of agricultural education, seed selection, disease and insect pest control, farmers' cooperative societies of credit, production and marketing, and finally community organization in the farming regions (pages 1-36).

## CHAPTER II. LAND SYSTEMS.

The land systems in China, from 2697 B. C. to the present are carefully analysed and put into chronological form. Every system of great importance from Tsing Tien down to Kaw Fan Shi Yat Tien and the reestablishment of the present system of private land ownership has been described. Brief evaluation of the economic effects of important systems is made. So far as the material of this chapter is concerned, it is largely confined to the recognized historical and classical writings. With reference to the archaeological evidences of the land systems, we can depend only upon the work of our historical archaeologists (pages 37-82).

## CHAPTER III. CROP SYSTEMS AND FARM WORK PLANNING.

The farm work plan described in this chapter is not the plan of a single farm. It does not serve as a fixed plan for any farm but rather as a schedule to guide and to remind the farmer what should be done in every month of the year, what things he can postpone to another month and what things he must do before

it is too late. As a result of the study of the farm work planning of Chinese farmers, at least two facts are revealed to us. The first is that our farmer is a self-sufficient person, being very similar to the American farmer a century ago. He and his family alone have constituted an economic microcosm, supplying their wants almost entirely by their own labor. There is no specialization; everybody is a "Jack-of-all-trades". The second fact is that the family system of China is the result of agricultural inefficiency in a modern sense, which is ascribed to the lack of a market for farm products (pages 82-100).

## CHAPTER IV.

### METHODS OF MAINTENANCE OF SOIL FERTILITY.

This chapter presents some specific and some general practices of maintaining soil fertility used by the Chinese farmers. So far as labor is concerned, most of these practices cannot be carried on in the United States. Since the labor problem is negligible in the old countries, these practices of maintaining soil fertility are quite rational and economical for the conditions in China. The things remaining for the modern Chinese agriculturist to do are to organize and to assimilate these usages on a more extensive, systematic and scientific scale. It is found by statistical calculation that in every 1,000 pounds of all fertilizers materials mixed in equal proportions, there are 24.7 pounds of nitrogen, 3.0 pounds of phosphorus and 7.9 pounds of potassium. If these figures are reduced to whole number, the ratio of N-P-K used in China annually is 8.0-1.0-2.7. It is also found that the amounts of nitrogen, phosphorus, and potassium removed per acre annually by the common crops in China are 147.4 pounds of nitrogen, 19.8 pounds of phosphorus, and 100.4 pounds of potassium. When these figures are reduced to whole numbers, the ratio of N-P-K removed by the crops in China is 7.5-1.0-5.0. From the above two ratios, we see at once that potassium is not sufficiently supplied to the Chinese soil while the phosphorus and nitrogen are just sufficient to feed the crops. This statement, when compared with the actual practice of manuring in China, has much significance. If there is anything that must be done to improve our methods of manuring, the insufficiency of replacement in the soil should be first considered. It is hoped that this calculation will serve as a guide for any measure or attempt to

improve the methods of maintenance of soil fertility of our farmers (pages 105-146).

## CHAPTER V.

### AGRICULTURAL SCIENCES.

This chapter discusses what has been done in the agricultural sciences during the present half century in China and the development which is sure to come. Until the last fifty years, the methods of farming in China were not scientific. But in the last 20 years the science of breeding of plants and animals has been well started in China. Most of the work along this line is done in cotton, sericulture, grains, and tea. The sciences of entomology, plant pathology, veterinary medicine, animal husbandry, and farm mechanics have been also in course of development. However, no accomplishments of great significance have been seen in any of these sciences. Of course this is partly due to the embryonic stage of development of agricultural science in China, but the main reasons for this slow development seem to be the following:

- A. Most of the scientific work is not undertaken by experts;
- B. There is no cooperation between the work of the several agricultural experiment stations and the colleges of agriculture;
- C. The results worked out by the agricultural experiment stations and the colleges of agriculture are not made available to the farmers (pages 147-170).

## CHAPTER VI.

### AGRICULTURAL TRADE AND COMMERCE.

The analysis of Chinese agricultural trade in this chapter shows the cause and effect of its present condition and what must serve as the basis for its reconstruction. The problems of every agricultural trade and their solution are also discussed. Although every agricultural industry has problems of its own, yet the solutions of these problems in all industries together have many similarities. This is because the depression in different branches of agricultural industry has been the result of similar causes. Thus in summary, it is possible to make out several general solutions for the agricultural industry as a whole. These general solutions are in the main:

- A. The increase of the import tariff generally and the tariff on agricultural goods in particular;
- B. Organization of trade associations and a national federation of trade associations;
- C. Improvement in the quality of both raw agricultural products and finished agricultural products;
- D. Development of the machinery of organized marketing;
- E. Organization of farmers' co-operative associations;
- F. Development of agricultural education in general and agricultural extension work in particular;
- G. Development of railway and oceanic transportation (pages 171-232).

## CHAPTER VII.

### AGRICULTURAL EDUCATION.

After studying carefully the work of the present system of agricultural education and the needs of agricultural education in China, the writer sets forth the ends of agricultural education to be achieved and the means and agencies to reach these ends in the following categories:

- A. Ends to be achieved:
  - 1. Increased efficiency of agriculture;
  - 2. Increased contentment and prosperity among the present farming population;
  - 3. The development and maintenance of a more progressive and prosperous farm population than the present on the farm;
  - 4. The gradual elimination of factors of agricultural disaster such as famine, flood, drought, diseases, and insect pests;
  - 5. The raising of the standard of citizenship and of living in the rural districts to a status not lower than that in the cities.
- B. Measures to reach these ends:
  - 1. Training agricultural specialists;
  - 2. Research to solve various agricultural problems, such as flood prevention, dry farming, cooperative organization, rural credit, controlling of insect pests and plant diseases, land tenure, rural social organization, and the marketing of farm products;
  - 3. Training men for leadership in agricultural administration and agricultural organization;

4. Furnishing data and principles for the administration of agriculture;
5. Making available all the results of research of the colleges and the experimental stations to the farming population;
6. Educating farm boys and farm girls to good citizenship and efficient and happy life on the farm;
7. Assisting rural communities in the enrichment of country life.

C. Agencies:

1. An agricultural college in every province;
2. An extension department affiliated with the college of agriculture.

## CHAPTERS VIII AND IX.

### AGRICULTURAL ADMINISTRATION.

The programs of agricultural administration are divided into three parts as follows:

A. Ends to be achieved: the ends to be achieved should be the same generally as those of agricultural education.

B. Measures to reach these ends:

1. Economic and social measures;
2. Agricultural science measures;
3. Cooperative investigation and extension measures.

C. Agencies:

1. National Ministry of Agriculture which has the following bureaus:

- a. Bureau of agricultural economies;
- b. Bureau of chemistry and soil;
- c. Bureau of plants and crops;
- d. Bureau of animal husbandry;
- e. Bureau of entomology and economic zoology;
- f. Bureau of forestry;
- g. Bureau of fisheries;
- h. Bureau of drought and flood prevention;
- i. Bureau of rural engineering;
- j. Bureau of weather;
- k. Department of agricultural extension and investigation.

2. Provincial Ministry of Agriculture:
  - a. Department of Council;
  - b. Department of Technical Administration;
  - c. Department of General Administration (pages 268-349).

## CHAPTER X.

### CONCLUSION.

The chapters of this study have presented many evidences to the readers that prosperity of agriculture can be secured only in conjunction with the prosperity of industry. Without the latter, the former must remain as it has been for thousands of years. In order to help to maintain the world peace, China must be developed industrially and agriculturally. She must open her natural resources and maintain an equal standard of material accomplishment with the advanced nations of the world (pages 350-359).

### REFERENCES AND BIBLIOGRAPHY—(pages 360-373).



